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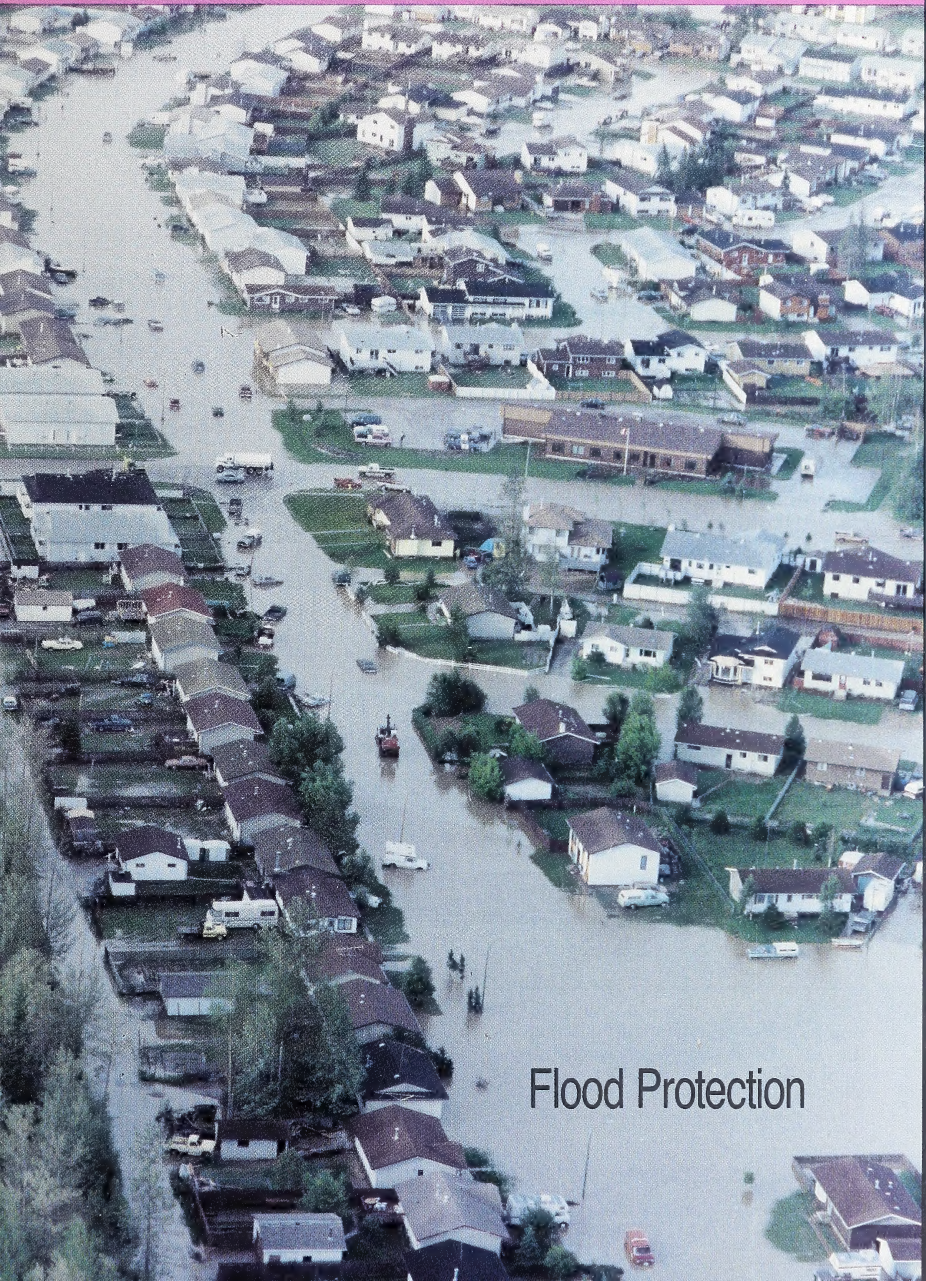
AGENCY INSIGHT



Flood Protection

You said it. . .

Your *Insight* just came and is mighty interesting, unusual and very informative. One item bothered me, the Emergency Planning article. It is wonderful to see everyone getting involved, but you missed the organization that is fulfilling that kind of responsibility every day of the year — the Red Cross. Just ask people in South Carolina and California. The Red Cross prepares and activates its disaster plan constantly and one of the most important things of all is a command post run by people who know how to do it.

Eugene Jacobs, Executive Director
American Red Cross
Hornell Chapter
Hornell, New York

(Editor's Note: In Canada, the Canadian Red Cross has a different function from its American counterpart. While the Canadian Red Cross plays a vital role during an emergency or disaster, the responsibility for a planned first response rests at the municipal level. The Canadian Red Cross provides invaluable assistance during these events through such things as registering people who need assistance, or are trying to locate missing relatives.)

A spill response plan

The task for small companies to develop a spill emergency response plan need not be complicated or onerous. There are seven basic steps that companies should follow to develop an in-house spill program.

1. Identify potential hazards, both chemical and physical, for commodities that you handle.

2. Inventory potential spill sources.

3. Make changes to your operations that will minimize spill risk, keeping in mind that spill prevention is the key issue, not response.

4. Prepare a company spill contingency plan based on absolute worst-case scenarios.

5. Evaluate your company's current resources, including equipment availability and effectiveness, and training programs.

6. Procure spill equipment to meet your needs, and develop a staff training program.

7. Test the adequacy of your contingency plan, spill equipment and personnel training program through regular emergency response exercises.

Alan B. McFadyen
Environmental Training Co-ordinator
Petroleum Industry Training Service
Calgary, Alberta

Insight is published quarterly by Alberta Public Safety Services (APSS). The publication aims to inform readers about current developments concerning topics which relate to the mandate of APSS: to prepare for, respond to and follow up on man-made or natural disasters in Alberta. This mandate includes activities in the areas of disaster services and management, as well as the handling, offering and transporting of dangerous goods.

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Insight
Director of Communications
Alberta Public Safety Services
10320 - 146 Street
Edmonton, Alberta
T5N 3A2

Editorial Board

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Editor

Cheryl Edwards

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On the Cover: A flood in Slave Lake and Improvement District 17 on July 6, 1988 affected more than 1,000 families and caused an estimated $12 million in damage. Photo by Rick MacWilliam, The Edmonton Journal.

Alberta
PUBLIC SAFETY SERVICES

DAVE COLE

The Hon. Ken Kowalski (centre), Minister, Alberta Public Safety Services, recently attended a ceremony in Swan Hills to mark the town's purchase of a new emergency and communications vehicle. The purchase was funded under the Regional Response Improvement Program. This program is jointly funded by the Alberta and federal governments and local municipalities to provide emergency equipment for use on a regional basis. With the Minister is Wilbur Peters, the Mayor of Swan Hills and Margaret Hanson, President of the Swan Hills Chamber of Commerce and former town mayor.

CANADIANA

JUN 26 1990

Reducing the threat of floods

This edition of *Insight* deals with floods. Do you feel that a whole edition should be focused on this one relatively minor disaster?

First, floods are not a minor disaster. They are not minor for people who have been flooded out of their homes. I have had first-hand experience of the floods in west central Alberta in 1986, the Slave Lake flood in 1988 and in the same year, the serious flooding in northeast Calgary. This year, the Alberta government has implemented a major program of disaster assistance for the very severe rains which destroyed hundreds of thousands of acres in crops in northwest Alberta in August through to October 1989. No, floods are a serious problem most years somewhere in the province. I welcome this issue of *Insight.* It is timely. It is important that we should know what is being done to help prepare for flooding in Alberta.

I understand what you have said, but can you put a dollar figure on the damage that the recent floods have caused?

I do not know the total cost of every flood, but I can tell you that the Alberta government has paid out over $50 million since 1986 in disaster assistance alone for floods, and of course, on top of this there is the cost in human terms of losing personal belongings and having one's home rendered uninhabitable for long periods of time.

Floods are, I think, seen by the public as uncontrollable events which advance inexorably and that little or nothing can be done to stop them. What can ordinary homeowners do to prevent the flooding of their homes?

In one way, I could reply by saying, "Not much," but that is not really true. Every year, for instance, the City of Fort McMurray faces the prospect of severe flooding with the spring breakup. Fort McMurray has a plan. Every citizen is made aware of the potential danger, every citizen has, or can obtain, a leaflet produced by Alberta Public Safety Services telling people what to do before a flood occurs and what to do after it has receded.

For many years, the Alberta Government has worked to reduce the risk of flooding to urban centres by such means as dams, channels, overflow floodways, berms and so on. These have substantially reduced the threat of catastrophic flooding. Also, the River Forecast Centre of Alberta Environment has an excellent program which enables, for example, the City of Edmonton to know virtually exactly how high the river will rise and, equally important, at what time it will reach any particular level. The full resources of the city are coordinated to alleviate the damage that can be caused by flooding. You can read more about this program in this edition of *Insight.* However, I will say that similar plans exist wherever in Alberta there is a perceived risk of severe flooding.

The assessment of a potential hazard is all part of the emergency planning that goes on continually throughout Alberta. Every municipality has to have, by law, an emergency plan, and of course, if there is a risk that the municipality could be subject to flooding, then its emergency plan takes this into account in the same way that the City of Fort McMurray's does.

Why do you give so much importance to emergency planning?

It is the duty of every government everywhere to plan to deal with any foreseeable emergency, and this is exactly what the Alberta government has done in the past and will continue to do in the future.

Ray Langman retires

Ray Langman, the Executive Director of the Disaster Services Division at Alberta Public Safety Services (APSS), will retire on June 1. During his 12 years with the agency, Mr. Langman has become highly regarded in the disaster response community for his thoroughness and affable nature.

Mr. Langman joined APSS on Sept. 1, 1978 as a training officer after almost three decades with the Royal Canadian Air Force. He was promoted to chief training officer on Feb. 1, 1980, and has been Executive Director of Disaster Services since Aug. 1, 1981.

A special reception will be held for Mr. Langman on June 5, and further details on his retirement will appear in the September issue of Insight.

As predictable events, floods often allow precious time to prepare.

Coming up in Insight

Partners in TRANSCAER

The Canadian Chemical Producers' Association (CCPA) is about to implement its second code of practice, known as TRANSCAER (Transportation Community Awareness and Emergency Response). TRANSCAER, which is part of the CCPA's Responsible Care policy governing the safe management of chemicals from cradle to grave, focuses on the safe transportation of chemicals. This summer, CCPA members will begin adopting 45 communities across the Prairie provinces as their "Partners in TRANSCAER". More details will be included in a future issue of Insight.

Staff Matters

Russell Kowtun is the new District Officer in St. Paul for the Disaster Field Services Branch. For the last 10 years, he has worked for the County of St. Paul as an assessor and Director of Municipal Disaster Services, and he also has a decade of experience with Correctional Services Division in the Alberta Solicitor General's department.

Being prepared for floods

This issue of *Insight* discusses the topic of floods in Alberta, particularly the efforts being made to ensure public safety. Of all the natural disasters, floods contain a respite of sorts for disaster management workers: as predictable events, floods often allow precious time to prepare.

The issue begins with an article by Ron Deeprose from Alberta Environment, a department which is heavily involved in protecting people from the damaging effects of floods. In his report, Mr. Deeprose discusses the four lines of defence Alberta Environment pursues in its vigilant flood watch. Another article from Alberta Environment, by Barry Hurndall, discusses flood prevention in the specific area of dam safety.

From Fort McMurray, Leesa Bushell, a city public information officer, talks about how this community prepares for the unpredictable each spring, particularly how the city keeps its citizens informed about the possibility of flooding from ice jams.

When severe flooding occurs in Alberta, the provincial government often steps in to provide financial help to property owners through the Disaster Assistance Program. In *Flooded with Challenges*, a report from Alberta Agriculture looks at the difficult problem of assessing erosion and silting damage to farmland which occurred during major flooding in 1986.

The true cost of floods goes well beyond property damage for the people affected by them. Two articles look at the human side of floods: a recent survey on the 1988 flood in Slave Lake discusses the outreach activities carried out by community health workers through visits to more than 800 families. A report from Rob Martin of Alberta Municipal Affairs discusses how families made homeless by the same flood were given shelter through an emergency housing program.

Finally, this issue's Viewpoint comes from an urban floodplain dweller who lives in dread of floods and wonders if city hall has turned its back on public safety in her neighborhood.

Insure against sewer backup

When heavy rains tax municipal storm sewer systems, property owners can sometimes face the unpleasant consequence of sewer backup in their basements. In addition to a formidable clean-up job, owners can also end up with a large bill for repairs and replacement of damaged property.

The good news about sewer backups is that — unlike many other places in North America — insurance is readily available in Alberta to compensate property owners in these situations. Property owners are advised to consult their local insurance brokers for more information before flood season begins.

Alberta Environment's high-tech network of automatic weather stations helps gather vital data to warn Albertans of floods.

ALBERTA ENVIRONMENT

Vigilant flood watch protects Albertans

by R.K. Deeprose, Director
Technical Services Division
Water Resources Management Services
Alberta Environment

A flood is an event as natural as the change in seasons or the variety in weather. However, while the regularity of spring melt and runoff, and the increase in river flows following rain are predictable and welcome, the "extraordinary events" — the great floods which randomly sweep down rivers and streams, damaging property and threatening life — are unpredictable beyond a few hours or days.

Periodically Albertans suffer from floods which are quite different in their cause, their capability of being forecasted and their effect. A rapid melt of a heavy winter snowpack can cause considerable difficulties in rural areas. The spring of 1974 saw such an event throughout central Alberta. Intense rainfall in mountain, foothill and other hilly regions of the province produces the huge floods which affect floodplain dwellers in many of our river valley urban communities. Ice jamming, an infrequent but very hazardous phenomenon, can occur on major rivers throughout the province during breakup. This sudden damming of a flow of water can quickly turn valley lands into a reservoir.

Urban flooding, associated with backed-up sewers and wet basements, results when heavy rainfall, magnified in effect by pavement, roofs and other hard surfaces, overtaxes the capacity of municipal drainage systems.

Alberta experiences about five to 10 significant floods each year on the average. While most of these floods originate from heavy rainfall along the east slopes of the Rocky Mountains or in the Swan Hills, in recent years, major floods have occurred in Slave Lake (1988), Edmonton (1986), Fort McMurray (1977) and Vegreville (1974). Some of these floods caused significant damage, notably the ice-jam flood in Fort McMurray in 1977, which resulted in damage claims estimated at $2.3 million, and the 1988 summer flood in Slave Lake, which resulted in more than $12 million in damages.

Four lines of defence

Alberta Environment is heavily involved in protecting Albertans from the damaging effects of floods through four lines of defence. The first line of defence is *precautionary.* Because rivers periodically cover valley bottoms or floodplains, the wisest choice for people is not to inhabit those areas. For 25 years, Alberta Environment and its predecessor have been surveying, analysing and mapping flood-prone areas. Recently, the department signed an agreement with the federal government, the Canada-Alberta Flood Damage Reduction Program, which formalizes, updates and expands the previous activity. This agreement is based on the premise that the best way to reduce the financial toll of flood damage is to discourage inappropriate development in the floodplain.

The program: (1) identifies and maps flood risk areas in urban communities across the province; (2) increases awareness of flood risk among the general public, industry and government agencies through a public information program; and (3) discourages new development in these flood risk areas through new federal and provincial government policies.

The second line of defence is *"intelligence" gathering.* Alberta Environment has a network of 44 automatic weather stations located in remote mountainous and hilly areas, accessible by helicopter, where rainfall generates the heaviest runoff. Precipitation and temperature sensors store data in microcomputers at these sites. Every three hours, the data is transmitted via the the Geo-stationary Satellite to a ground station and retrieved by the computer at Alberta Environment's River Forecast Centre.

The third line of defence is *analysis and warning.* Rainfall flood forecasts are prepared by analysing the distribution of the rainfall, together with prevailing temperature conditions. Computer models of the watersheds have been created to account for all of the factors which determine the amount of runoff from a storm. The results of these models are tempered by the experience of the department's flood forecasters.

Always on guard

Alberta Environment maintains a constant state of readiness to forecast the imminent occurrence of floods and to provide up-to-date information and forecasts.

If it is determined that a significant probability of imminent flooding

Engineers from Alberta Environment measure the elevation of the flood of the North Saskatchewan River in Edmonton in 1986 to provide data for future flood analysis.

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exists, warnings are sent to a wide variety of agencies, including Alberta Public Safety Services, the news media and the municipalities which are expected to be affected by the flood. During this time, Alberta Environment's River Forecast Centre maintains an around-the-clock operation to ensure that the information available to agencies fighting the flood is as up-to-date as possible.

Although most floods in Alberta result from rainfall, some are the result of melting snow. Alberta Environment also maintains a widespread network of snow accumulation gauges in the mountains, and makes frequent snow surveys throughout the province in spring and early summer to monitor snowpack conditions which might lead to flooding.

Ice jams unpredictable

Ice jams pose a particular problem. With the current state of the science of forecasting, they cannot be predicted with any real confidence and they can happen in a matter of hours at spring breakup.

Where ice jams have been a constant concern, for example, at the town of Peace River and the city of Fort McMurray, Alberta Environment staff monitor the spring breakup from the air and/or by round-the-clock field observations at critical locations. Fifteen years of constant attention to particular problem areas, coupled with joint action with B.C. Hydro regarding flow control on the Peace River, have enhanced the expertise of Alberta Environment's staff and improved the department's ability to anticipate or ameliorate problems.

A number of techniques have been used in an attempt to prevent or break an ice jam. Spraying the ice with dark material and plowing lanes on the solid ice pack to encourage fracturing along certain lines are techniques which have been successfully applied on the Peace River. Explosives have been employed to create fracture lines, and to blast the river ice responsible for Fort McMurray's flood in 1977.

The fourth line of defence against floods is the traditional *engineering structural approach* of building dams to retain flood waters and dykes to protect developed floodplain land. The Paddle River project, for example, was built strictly for flood control, while the Dickson Dam on the Red Deer River is operated partially in a flood control mode. Dykes along the Bow River at Calgary, along the Red Deer River at Sundre and Drumheller and along the Peace River at the town of Peace River, were designed and built by Alberta Environment to offer a measure of protection to urban development.

Floods are a natural occurrence in Alberta. They usually result from snowmelt or rainfall events as well as ice jams. Through a network of automatic data collection stations, rainfall, snowpack and streamflow data are monitored continuously. By the use of computer models, the highly trained staff of Alberta Environment's River Forecast Centre prepare flood forecasts. These forecasts are used to provide timely flood warnings which are disseminated to a wide variety of agencies, including Alberta Public Safety Services, the news media and municipalities expected to be affected by the flood. These timely flood warnings help to reduce greatly the flood damage and loss of lives.

ALBERTA ENVIRONMENT

Explosives are sometimes used by Alberta Environment as one technique to help prevent unpredictable ice jams on northern Alberta rivers at spring breakup.

FORT McMURRAY TODAY

Spring breakup in Fort McMurray draws crowds each year, but the possibility of flooding caused by ice jams is an annual worry.

Preparing for the unpredictable

by Leesa Bushell,
Public Information Officer
Disaster Services
City of Fort McMurray

In 1835, Henry John Moberly of the Hudson's Bay Co. chronicled the first eye witness account of flooding in Fort McMurray. Moberly described an 85-mile stretch of ice that came down the Athabasca River with terrific force, driving ice two miles up the Clearwater River. Ice piled up at the forks to heights of 40 to 50 feet, and the water apparently rose 57 feet in one hour.

A century later, in 1936, the ice pushed up the Clearwater River for four miles, jamming and packing the river solid with large chunks of ice and flooding the Hudson's Bay Co. warehouse with three feet of water within a few hours. The most recent flood in Fort McMurray was in 1977, when the water level rose to 248 metres above sea level. Based on historical information, it has been predicted that a flood reaching 252 metres in height will occur once every 100 years.

The question is, was 1835 that 1-in-100-year flood, and is Fort McMurray due for another massive flood very soon?

Logically, the ice on the Athabasca River should break up first, and then open the way for the breakup of the Clearwater. However, as history has proven, logic has nothing to do with it. Ice often jams the Athabasca, so when the ice on the Clearwater breaks, it floods its banks in Fort McMurray.

Planning for floods

The City of Fort McMurray is built on the floodplain beside the Clearwater River, just upstream from its confluence with the Athabasca. As a result of this geographic location, the city's Disaster Services Agency has had to establish plans and programs to provide prompt and co-ordinated response in case of flooding emergencies.

Each year, in an attempt to prepare for the unpredictable, a public awareness campaign swings into gear about the first week of April. Citizens are advised to call in to a bank of telephones with recorded messages for updates on river conditions. This message is compiled from three sources, with help from Alberta Environment: aerial reconnaissance, weather reports and people who act as river monitors. The aerial surveillance upstream from the city provides information about when the Athabasca River ice breaks in the town of Athabasca and starts heading towards Fort McMurray. (For more information about Alberta Environment's role in monitoring spring breakup and preventing and breaking ice jams, see the article *Vigilant Flood Watch Protects Albertans* by Ron Deeprose.)

Weather reports from Environment Canada signify the onset of breakup when the night-time temperatures stay above freezing point. The river monitors stationed at five locations along the Clearwater and Athabasca Rivers report on ice conditions and water levels. In the midst of breakup, when ice is moving through the city, this information is updated hourly, and fact sheets are then delivered to the local media.

Radio keeps citizens posted

Pamphlets containing evacuation maps, brochures entitled *Flood Disaster: What to do Before and After Flooding,* produced by Alberta Public Safety Services, and the phone number for the river monitoring line are delivered to homes in the downtown area and are available at city hall. Local newspapers and the broadcasting media notify and update residents on an ongoing basis. Due to its immediacy, radio coverage is the key media outlet during annual breakup. Citizens are advised to have battery-operated radios available in case of emergency.

Each spring, local residents live with the threat of flood waters inundating the downtown core. If forced to evacuate, thousands of citizens would have to leave their homes, and would have an immediate and pressing need for food, clothing, shelter, medical care and a way to contact their families. The ramifications of a flood are serious, including the possibility of lost lives, extensive damages, contaminated drinking water, interrupted power and telephone service and millions of dollars in clean-up costs. While this kind of flood cannot be predicted or prevented, the city's Disaster Services Agency attempts to take all the necessary precautions to ensure public safety.

The 1986 flood of the Pembina River caused unprecedented damage to farmland.

PAUL RIOPEL

Flooded with challenges: Assessing farmland damage

(Editor's Note: The following report was adapted or taken directly from *Agricultural Land Flood Damage Disaster Assistance Program West-Central Alberta, 1986: Silting and Erosion Summary Report,* which was released in March 1989 by the Conservation and Development Branch of Alberta Agriculture.)

During July 1986, the soils throughout west central Alberta became saturated with almost daily rainstorms. When the rainfall became particularly heavy between July 16-18, the result was severe flooding along the area's major rivers and their tributaries, particularly the North Saskatchewan and the Pembina Rivers.

Flooding is nothing new along these rivers, but the property damage in this case was extensive. The flooding of the Pembina River, in particular, was an extreme event, estimated to be the worst flood in 70 to 133 years. In this case, the extent of severe erosion and amount of thick, unmanageable silt left behind on farmland — in some cases, more than a metre thick — were unprecedented.

Because of the extent of the damage involved, and the fact that the flooding was a special, uninsurable circumstance, the provincial government announced that financial assistance would be provided through the Disaster Assistance Program to those affected by the flooding. Eventually, more than $16 million was paid to farmers to reclaim land, and provide assistance for crop loss, structural damage, debris cleanup, and loss of tools or equipment. Assistance was cost-shared with the federal government, which provides financial assistance after particularly severe natural disasters, through the Disaster Financial Assistance Arrangements.

Measuring flood damage

The task of assessing the flood damage proved to be a challenge on a number of fronts. How, for example, do you measure silting and erosion damage, and how do you determine reasonable reclamation guidelines? In their preliminary assessments, Municipal Affairs assessors found cases where damage was so extensive that they requested technical assistance in estimating costs. As a result, Alberta Agriculture was called in to provide its expertise, and applications involving silting and erosion of farmland were administered through the department's Soil Conservation Area Program (SCAP).

Because a review of the initial assessments indicated that considerable effort was required to document the extent of damage and to determine reasonable and appropriate reclamation guidelines and costs, a soils consultant was also contracted.

To document the amount of damage, local government Agricultural Service Boards and their Agricultural Fieldmen received special training. In conjunction with field visits, a mapping approach was developed using post-flood air photos blown up to show clearly landscape and flood damage features. Grids were overlaid to estimate acres of each damage class. The fieldmen also offered advice on reclamation methods and costs to farmers. Alberta Agriculture staff and soil reclamation consultants examined several properties, helped develop reclamation plans, and monitored various efforts to evaluate procedures. This procedure was useful in finalizing program guidelines and costs, in addition to providing an extension service.

Disaster assistance criteria

Of the more than 1,500 applications for assistance received, about 360 involved silting and erosion damages. Under the policy guidelines developed by the inter-departmental Disaster Assistance Committee, applicants were eligible for assistance for such things as the costs to remove thick deposits of silt or to incorporate it by deep plowing or cultivation, the repair of eroded gullies and for topsoil loss. Disaster assistance was not available for silt deposits of less than one centimetre, for damages on Crown-owned land, river bank erosion, damages to unimproved land such as bush pasture, or for costs in excess of land value. Assistance was provided for agricultural lands only.

A maximum of $500 per acre was set by Municipal Affairs as a fair pre-flood market value for cultivated floodplain land in the Sangudo-Westlock area. In cases where the land was damaged to such an extent that reclamation costs exceeded this maximum $500 per acre, the landowners were offered the option of selling the land to the Crown. Out of the $1.34 million paid in assistance for silt and erosion damage, 77 per cent of the payments were for damages result-

People displaced by floods experience emotional as well as financial costs.

ing from flooding in the Pembina River basin, 15 per cent for the North Saskatchewan River basin, 6.6 per cent to the Athabasca-McLeod River basin, and 0.9 per cent to the Red Deer River basin.

One of the most interesting and useful things to come out of the 1986 floods was a set of guidelines for reclamation of agricultural lands damaged by sediment deposits, along with their associated costs. The guidelines, which are included in the *Silting and Erosion Summary Report,* were developed to provide guidance to landowners and agricultural extension workers, and a basis for determining disaster assistance payments.

Tips for future floods

In addition, the report makes a number of recommendations for people who might be involved in future programs of this nature. They include tips on practical matters, such as obtaining new aerial photographs as soon as flood waters recede and reviewing land titles before damage documentation begins, therefore ensuring that assistance payments go to registered landowners. As well, the recommendations include advice on handling more delicate situations: it's wise to avoid local personality conflicts, for one thing, and some problems can be expected over the fact that grant payments go to registered land owners, in particular, problems arising from agreements for sale, partnership breakups, estates and divorces.

The human cost of floods: Report provides model for disaster response

(Editor's Note: This article was adapted and condensed from the executive summary of *Anniversary Survey Report of the 1988 Flood in Slave Lake and Improvement District 17,* which was prepared by Candy Cheng-Jardine, the project's coordinator.)

On July 6, 1988, the Sawridge Creek overflowed its banks, flooding the town of Slave Lake and Improvement District 17. The flood caused significant damage, estimated at more than $12 million, and affected more than 1,000 families. The true cost of the flooding for these people cannot be measured in dollars, and financial compensation was only one of their needs.

Through funding provided by Alberta Public Safety Services, the Slave Lake Community Health Nursing Division of the Athabasca Health Unit was able to offer a series of outreach services to these families. Home visits involving more than 800 families were conducted immediately after the flood, as well as three and nine months later. To conclude the outreach activities, a survey was conducted in June and July of 1989 to look at some of the human costs of the flood, and to evaluate the effectiveness of the outreach program. The result, detailed in the *Anniversary Survey Report of the 1988 Flood in Slave Lake and I.D. 17,* is a rural model of disaster response that should prove useful to other communities in their planning for large scale emergencies.

The survey had three major objectives: to identify and report on the perceived impact of the flood on those surveyed; to evaluate the effectiveness of the community health outreach, and to identify and report on the need for flood-related public forums and support groups within the communities.

Almost back to normal

While 80 per cent of the respondents reported their lives were back to normal, and more than 30 per cent reported positive experiences related to the flood's impact, such as improved community cohesiveness, more than 20 per cent experienced negative impacts. Almost 10 per cent said their lives were worse than before the flood.

Unresolved concerns

Most people reported experiencing emotional and financial stress, particularly concerning themselves or their children, and the majority of respondents in the most heavily affected flood zones still had unanswered concerns. The major ones were flood prevention, emotional and health issues, the town's role and responsibility, equity issues in assistance and problems relating to information or communication.

A recent report discusses the importance of outreach programs to support people affected by flooding.

In the assessment of the outreach program, more than half of the respondents found the home visit to be the most helpful service of all outreach activities, especially newer residents, Native and Lebanese respondents. Most respondents found the outreach activities were most helpful on health and sanitation issues, emotional support and discussions of children's issues.

More than one-third indicated they would take part in a public meeting, particularly those who had experienced mixed flood impacts. Almost one-third of the respondents also indicated an interest in participating in support groups, particularly long-term residents aged 30-50, with no post-secondary education.

The report includes a number of recommendations for other communities in planning for floods. To be effective, the report states that strategies must be appropriate to the community and its specific need. The Slave Lake survey uncovered a major difference between rural and urban residents in terms of their needs and perceptions of needs. Town residents, for example, were more forthcoming in their responses.

Better communications needed

Since a significant number of Slave Lake residents expressed dissatisfaction with the town's handling of the flood, the report recommends the town should inform the community about its responsibility in flood prevention, prewarning and communication systems, disaster planning and repairs.

Because a number of residents complained about how the provincial disaster assistance program was handled (20 per cent, for example, said that insurance compensation or government assistance was inadequate), the report recommends that Alberta Public Safety Services re-evaluate its assistance guidelines and procedures, with particular attention to how they are applied. To avoid misunderstanding, misinterpretation and unrealistic expectations, the report suggests that APSS identify a strategy for effectively relating its policy guidelines and practices to the affected public.

Health recommendations

In the field of community health nursing, the report recommends that outreach activities should be incorporated into the local disaster plans as one responsibility of the local health authority. Community health nursing should also actively engage the public, agencies and other stakeholders in the community disaster response plan, and strengthen their association with other service agencies and volunteer groups. After a disaster, they can then work together to promote support groups and public information sessions.

The report also recommends that community health nursing, as part of its broad-based services, include in family health assessments information on how families coped with previous crises. This information could help identify people who might need additional emotional support in a disaster situation.

A precious resource

One positive result of the Slave Lake flood is the lessons learned for future disasters. Some of these lessons, particularly concerning the human cost, have been recorded in the Slave Lake flood survey for the benefit of others. As the report states in the foreword, "the flood disaster has influenced the Athabasca Health Unit — Slave Lake Region staff by teaching us individually and as community members about the healing process. It has also taught us how to effectively manage our most precious resource, people, and how to develop effective strategies to respond to people's needs."

MIACC NEWS

Major Industrial Accidents Co-ordinating Committee Volume 4, No. 1, 1990

BUFFER ZONES: THE BREAKTHROUGH

"A landmark in the development of MIACC."

Mr. Tom Forgrave

This aptly describes the response at the third annual meeting, when **Tom Forgrave**, Assistant Deputy Minister, Alberta Municipal Affairs and chairman of the working group on buffer zones, presented his report.

For the first time in its short history, the organization adopted a resolution to take clear action on major industrial accident prevention, when delegates endorsed the group's recommendations in total.

In the words of **Mark Egener**, Managing Director, Alberta Public Safety Services and a member of the MIACC steering committee:

"This working group has done a particularly useful job. One of the thorniest issues facing any major industrial accident prevention program involves buffer zones. This is the first time we've got a grip on the problem. The group has been extremely productive, and I don't think it could have happened without MIACC."

The group concluded that national fixed regulations would not be advisable. The responsibility for land-use planning in this country lies with the provinces; however as a result of local circumstances and traditions, some provinces have established this authority with municipalities. Therefore, in many situations land-use planning has become a shared provincial/municipal responsibility which renders enforceability of fixed regulations very difficult. The group suggested the adoption of a co-operative approach in developing a general set of guidelines that municipalities can use when creating buffer zone by-laws. This process should be flexible enough to use within any land-use system, yet stringent enough to resist the pressures of encroachment.

The group made the following recommendations at the annual general meeting. First, a national agency should be established to develop guidelines for risk assessment and act as a resource for regulating authorities. Risk assessment is a complex undertaking which takes into account the type of development, topography and many other factors external to the political jurisdiction. This agency would be very useful since the majority of canadian municipalities lack the necessary resources to carry out the assessment and properly interpret the results. The agency could also provide advice to regulatory authorities and, if there is demand, conduct the risk assessments.

Second, the provinces should ensure that the proper legislative authority is available to the appropriate authority for the establishment of buffer zones. The implementation of buffer zones is entirely dependent on the provinces. There are similar processes in place for such developments as airports and sour gas plants. Therefore, it would not be difficult to establish such processes for developments where the potential for a major industrial accident is present.

Third, a communications program designed to promote the use of buffer zone legislation should be developed. In general, the public is inclined to think that it's safe to locate close to risky developments because a disaster would never happen in their back yard. However, numerous major industrial accidents have clearly proven that theory wrong — Three Mile Island, Mississauga, Bhopal, Chernobyl. It is therefore important that we promote buffer zones as a preventive measure.

In an effort to communicate the findings of this group, the chairman of the MIACC steering committee has written to all provincial and territorial ministers responsible for municipal affairs. He has requested their support regarding the establishment of buffer zones. Responses to date have been encouraging. The chairman has also requested that MIACC members from each province/territory advance these efforts within their respective governments and request that positive action be taken.

For the coming year, the group plans to study the findings from the working group on risk assessment, monitor progress of their recommendations on legislation, develop guidelines on permitted land uses in buffer zones, and, evaluate the application of these guidelines for existing developments.

Mr. Forgrave is now stepping down as chairman of the group. He has accomplished the task which he set out to do, and feels that the next phase calls for the skills of professional land-use planners.

MIACC News wants to take this opportunity to thank Mr. Forgrave and his team for a job well done.

"MIACC'S BEST ANNUAL MEETING"

This is a good reflection of the comments expressed in many of the informal discussions at 1989 annual general meeting (AGM).

MIACC is a young organization, with stakeholders from diverse backgrounds and geographic locations. The AGM provided them with the opportunity for personal contact, group input and productive discussions on the future and direction of MIACC and its working groups.

The organizers had two goals in mind when planning for the meeting. First, they wanted to gain the insights and experience of those individuals who will ultimately be implementing the products which are being developed by the working groups.

The meeting arrangements comprised open plenary sessions as well as smaller group think tank sessions. Working group chairpersons gave presentations to all registrants in the plenary. This in turn, enabled delegates to better understand all of MIACC's activities and establish effective and pertinent goals for future work during the think tank sessions.

As the conference progressed, the sense of purpose was rapidly rekindled and delegates gathered to discuss their mutual interests of public and environmental safety. It soon became clear that the people present were not only convinced of the need for MIACC, but they also had some good ideas as to what direction the working groups should take. The actual recommendations are explained in more detail later in this newsletter. Many were eager to participate and expressed interest in serving on working groups for the coming year.

The other main goal of the meeting was for delegates to provide ideas and advice on MIACC's difficulties with regards to a lack of proper organizational structure and the funding of its activities.

This year, as MIACC Chairman **Jean Bélanger**, President, The Canadian Chemical Producers' Association, commented, MIACC was approaching a crossroads. There appears to be no doubt that MIACC has an important and ongoing role to play. The question is how best to structure the organization.

Delegates were very helpful in identifying various methods to accomplish future work. As a result of the complexity of the issue, no definite conclusions were reached. However, many views were expressed and delegates certainly sent a strong message to the steering committee — all efforts should be made to resolve this predicament as soon as possible.

All in all, the meeting was a great success. The participants have ensured that MIACC has a full program for the coming year. It certainly presents a great challenge for 1990.

UPCOMING EVENTS

*The fourth MIACC Annual General Meeting is now scheduled for the 7th and 8th of November 1990 at the Chateau Montebello, Montebello, Quebec. Contact Jodie Kaeding at the MIACC Office for more information.

*Plans are now under way for the third international conference on dangerous substances emergency response, to be held in Calgary, Alberta on the 28th to the 30th of May 1991.

MIACC is presenting the **ER'91** conference, which follows on from the highly acclaimed events in Vancouver in 1986 and Halifax in 1989. The theme will be centered around the integration of technology, people and equipment into an effective system that addresses prevention, preparedness and response to accidents involving dangerous substances. The conference offers opportunities to share information and obtain insights into the latest technologies and programs of industry and government to prevent, prepare for and respond to dangerous substances accidents.

Details are to be announced soon. For more information, contact Paula Giles at the MIACC Office.

MIACC News is published in Canada by the Major Industrial Accidents Co-ordinating Committee, a co-operative group representing government, industry, academia and the public in the prevention of, preparedness for and response to major industrial accidents involving dangerous substances.

Editors: **Graham Creedy** and **Garrett Patterson**

Editorial Board:
Wayne Daley
Art O'Connor
Michael Salib
John Shrives

For more information or comments, contact:
MIACC
#421 - 360 Laurier Ave. West
Ottawa, Ontario, Canada
K1A 0N5
Tel: (613) 990-1133 Fax: (613) 954-4915

WHO'S WHO IN MIACC FOR 1990 STEERING COMMITTEE

Chairman

Jean Bélanger,* President
The Canadian Chemical Producers' Association
(613) 237-6215

Members

Martine Berube, Policy Analyst
Federation of Canadian Municipalities
(613) 237-5221

Stan Bradbury, Manager,
Dangerous Commodities
CP Rail
(514) 395-7560

Don Cassidy, Executive Director
Canadian Association of Chiefs of Police
(613) 233-1106

François Côté,
Director of Expertise and Consultation
Quebec Ministry of Public Safety
(418) 646-7943

John Dillon, Manager, Environmental Affairs
Canadian Manufactures' Association
(613) 233-8423

Mark Egener,* Managing Director
Alberta Public Safety Services
(403) 451-7107

Harvey Friars,* Manager,
Emergency Response & Regulations
ESSO Petroleum
(416) 968-5291

Dennis Davis, Director General,
Inland Waters
Conservation & Protection
Environment Canada
(819) 997-2019

Lorne MacLean,* Consultant
Canadian Association of Fire Chiefs
(613) 237-9120

Dennis Pratt, Inspector General Transport Safety
Transport Canada
(613) 993-7985

Don Puccini, Director,
Emergency Management Division
Agriculture Canada
(613) 990-3295

Ken Reeves, Co-ordinator of Emergency Planning
Emergency Planning Ontario
(416) 965-6932

Maureen Shaw, Chairman, Council of Governors
Canadian Centre for Occupational Health
and Safety
(416) 572-4437

Eric Shipley,* Director General, Plans
Emergency Preparedness Canada
(613) 991-7052

John Shortreed, Director
Institute for Risk Research, University of Waterloo
(519) 885-1211 X-3377

Keith Sidwell, Director, Governmental Affairs
Canadian Standards Association
(416) 747-4090

Jim Stith, Director
New Brunswick Emergency Measures Organization
(506) 453-2133

Frank Vidalin, Supervisor, Transportation Services
Cominco Fertilizers
(403) 258-4662

Executive Director

Michael Salib,* Executive Director
Major Industrial Accidents Co-ordinating
Committee
(613) 990-1133

**Executive Committee Members*

WHAT IS THE SECTORAL PARTICIPATION IN MIACC?

A question often heard. Here is a breakdown of the participants who were present at the Annual General Meeting.

The affiliations:

Industry	38%
Federal government	22%
Provincial governments	22%
Municipal governments	6%
Others	12%

1990 Steering Committee

Photo above was taken at a meeting of the Committee in Ottawa January 26, 1990
***Back Row** (from left to right) Eric Shipley, Director General of Plans, Emergency Preparedness Canada; Keith Sidwell, Director of Governmental Affairs, Canadian Standards Association; John Dillon, Manager of Environmental Affairs, Canadian Manufacturers' Association; Lorne MacLean, Consultant, Canadian Association of Fire Chiefs. **Middle row** (from left to right) Frank Vidalin, Supervisor of Transportation Services, Canadian Fertilizer Institute; Dennis Pratt, Inspector General of Transport Safety, Transport Canada; Ken Reeves, Co-ordinator of Emergency Planning, Emergency Planning Ontario; Maureen Shaw, Chairman, Council of Governors, Canadian Centre for Occupational Health and Safety; Jim Stith, Director, Emergency Measures Organization for New Brunswick; François Côté, Directeur de la direction de l'expertise et de la consultation, Ministère de la sécurité publique du Québec; George Cornwall, Director of Management and Emergencies Branch, Environment Canada. **Front Row** (from left to right) John Shortreed, Director for the Institute for Risk Research, University of Waterloo; Mark Egener, Managing Director, Alberta Public Safety Services; Michael Salib, Executive Director, Major Industrial Accidents Co-ordinating Committee (MIACC); Jean Bélanger, President, Canadian Chemical Producers' Association and Chairman, MIACC John Reed, Co-ordinator of Environmental Safety, McColl-Frontenac Inc.*

1990 WORKING GROUP CHAIRPERSONS

WG 1 John Shortreed, Director
Institute for Risk Research,
University of Waterloo
(519) 885-1211 X-3377

Ann Robinson, Science Policy
Adviser
Ontario Ministry of Labour
(416) 965-9450

WG 2 Lorne MacLean, Consultant
Canadian Association of Fire Chiefs
(613) 237-9120

WG 3 Larry French, Planning Co-ordinator
for Public Protection
Emergency Preparedness Canada
(613) 991-7060

WG 4 Mrs. Lynne Provost
Environmental Emergencies
Program Officer
Environment Canada
(819) 997-3744

WG 5 Mr. David Belgue, Urbanist
Quebec Municipal Affairs
(418) 691-2006

WG 6 P.K. Abeytunga, Director
Information Systems Services
Canadian Centre for Occupational
Health and Safety
(416) 572-2981

WG 7 Doug Hill, Specialist
Emergency Response Planning
Nova Corporation
(403) 290-6400

WG 8 P.K. Abeytunga, Director
Information Systems Services
Canadian Centre for Occupational
Health and Safety
(416) 572-2981

WG12 Wayne Bissett
Environmental Emergencies Branch,
Conservation and Protection,
Environment Canada
(819) 953-8257

WORKING GROUP REPORTS

Group 1: Risk Assessment Guidelines for Canadian Municipalities

The report incorporates the work of two task forces: the first, chaired by **Anne Robinson**, Science Policy Adviser of the Ontario Ministry of Labour, developed lists of substances and quantities that would trigger the need for risk assessment; the second, chaired by **John Shortreed**, Director of the University of Waterloo's Institute for Risk Research, developed a recommended approach to risk assessment.

The objective of this group is to achieve public protection from the effects of major industrial accidents through enhancing the capability of Canadian municipalities to perform effective risk assessments.

Mr. Shortreed stressed that the work is still only partially complete and was presented for MIACC's approval of the approach, and for direction on any changes.

The approach is intended as a screening process, to be followed up by more intensive analysis and assessment if warranted by the results of the preliminary investigation.

Dangerous substances triggering risk assessment are classified in two draft lists: level 1, 29 substances, derived principally from the top 50 chemicals on Environment Canada's spills list; level 2 substances are derived mainly from the Transport of Dangerous Goods Regulations Schedule XII and the remainder of Environment Canada's top 150 chemicals on the spills list.

Recommendations:
- present work is valuable and should be carried to conclusion; and,
- a two-pronged approach is needed — first, the guide now being developed could serve as a basis for risk assessment by industries and the provinces conducting the study at the request of municipalities; and second, a simple, basic guide, for use by typical municipalities, should also be developed so that initial screening can be done with minimum knowledge.

The group was also asked to consider whether the basic guide should focus on industrial activities likely to involve dangerous substances, rather than on the substances themselves. This may be much easier for use by untrained or non-technical personnel.

At its first gathering in 1990, the MIACC Steering Committee decided that the working group should use the Transport Dangerous Goods Schedule XII list as its priority list since it is now widely publicized and used. They also acknowledged that present quantities referred to in Schedule XII may have to be modified for risk assessment purposes.

Group 2: Training Standards for Emergency Response Personnel

The group's chairman, **Lorne MacLean**, a consultant on behalf of the Canadian Association of Fire Chiefs, made the presentation.

The group's objective is to achieve an effective and consistent level of response to major industrial accidents involving dangerous substances through the enhancement of the capability of emergency response personnel. Two lists were developed under the work plan: qualification standards, and training standards and related materials.

The first identified NFPA 472, "Standard for professional competence of responders to hazardous materials incidents" for the qualification of first responders. The second list includes 17 documents for reference on training standards and responder training, together with a brief list of visual aids. The format, scope and purpose of each of the documents are outlined to aid selection.

The proposed work plan involved assessing suitability and any deficiencies in the listed documents, determining the acceptance and recognition, and summarizing the findings for publication.

Recommendations:
- expand the scope to include other categories of first responders, and increase participation on the working group;
- support the CCPA training initiative; and,
- keep information simple and use a range of delivery methods to reach the target audience — fire, police, ambulance and industry emergency response personnel.

Group 3: Contingency Planning Guidelines for Municipalities

Chairman **Larry French**, Planning Co-ordinator for Public Protection from Emergency Preparedness Canada presented his report. The objective of this group was to achieve a consistent level of protection for municipalities against major industrial accidents through effective contingency planning. Three manuals have been developed, with publication planned for 1990:

1. *Planning for and responding to emergencies*, for municipalities, also useful for elected officials and all other emergency planners.
2. *Hazards, vulnerability and risks* — Guide to planning, an aide-memoire for those developing emergency plans, and as a supplement to existing guides.

3. *General guidance for the development of emergency plans*, for municipalities, setting out principles with broad application for all involved in civil emergency preparedness. A step-by-step guide using a multi-hazard approach.

Recommendations:

- the group should assess the reception of the documents once published, and that MIACC should promote the need for the guides.

Group 4: Accident Trends Analysis

Chairman **Brian Mansfield**, Chief of Environmental Emergencies, Environment Canada, presented his report. It consisted of two parts: dangerous substances accident statistics in Canada; and, recent significant case studies of environmental, transportation and plant-site accidents in Canada and elsewhere. The group's objective is to achieve a reduction in frequency and severity, through the identification of trends, of major industrial accidents in Canada, in terms of numbers, magnitude and impact.

The databases used for the statistics were Environment Canada's National Analysis of Trends in Emergency Systems (NATES), Transport Canada's Dangerous Goods Accidents Information System (DGAIS) and Statistics Canada's National Work Injuries Statistics Program (NWISP), with case studies also provided by the Organization for Economic Co-operation and Development (OECD).

NATES trends are reviewed by province/territory, economic sector, environmental element, consequences and cause. DGAIS statistics are broken down by province/territory, deaths and injuries, class of goods, area and severity. NWISP, used for plant-site trend analysis, is by percent of time-loss injuries by industry.

Recommendations:

- improve reporting of accidents by establishing an information collection system or extending existing systems, with increased participation of existing non-mandatory reporting systems;
- improve capture and follow-up, with greater emphasis on cause, lessons learned and more exchange of information, especially on the international scene.

Delegates called for definition of criteria for reporting. An outstanding problem was the need for rapid communication of causes and lessons, and the difficulty of obtaining this information before liability has been assigned. Various government agencies sometimes have a possible conflict-of-interest in encouraging open communication while seeking to prosecute on the basis of the same information.

Group 5: Buffer Zones

(See article on page one)

Group 6: Co-ordination of Chemical Information Centres

Kelly Hart, Advisor, Emergency Services from Health and Welfare Canada, made the group's presentation. The group's role is to promote co-ordination of information systems containing data for handling dangerous substances emergencies, with emergency medical information as top priority.

The group reported that a sub-committee of five federal departments has identified the need for a universal index of chemicals regulated in Canada. This committee is now studying options for achieving this, including possible use of the Canadian Centre for Occupational Health and Safety (CCOHS). Health and Welfare Canada has also participated in the continuing development by the United Nations of the International Register of Potentially Toxic Chemicals (IRPTC), while a multilingual poisons information package is being developed by the International Program on Chemical Safety (IPCS), the CCOHS and the Centre de Toxicologie du Quebec (CTQ). An index of Canadian chemical information systems was presented by Transport Canada as an attachment to the report.

Recommendations:

- establish formal networks on toxicological data for physicians, via emergency medical centres (EMCs);
- facilitate exchange of information between EMCs;
- to publicize the work of CCOHS on poison monographs, and that of the European chemical industry's Ecology and Toxicology Centre (ECTOC) in Brussels; and,
- communicate information on hazards inventories.

Some expressed concern about the need for rapid information, and for more information in French, but it was pointed out that the Canadian Transport Emergency Centre (CANUTEC) provides bilingual service on a 24-hour basis and should be linked to poison control centres and CCOHS.

Group 7: Contingency Planning Guidelines for Industry

John Reed, Co-ordinator of Environmental Safety for McColl-Frontenac Inc., presented the group's report. The report was in outline only, since it started late in the year. The objective is to achieve a consistent level of public protection from major industrial accidents through effective contingency planning by industry. Work involved identification of needs and of current activities on industrial emergency response planning.

Recommendations:

- increase awareness, both between the community and industry and vice-versa, preferably at an early stage in plan development.

Group 12: Industry Prevention Activities

John Shrives, Senior Program Engineer with Environment Canada, presented the group's report. The objective is to assist companies who are handling dangerous substances to improve safety and accident prevention programs. Its focus is primarily on downstream chemical industries and small/medium enterprises. The group acts as an information clearing house, identifying documentation and materials suitable for users, who generally do not have the time or ability to stay informed on what is available.

The group is monitoring the output of international organizations currently working in this field. These include the OECD, the United Nations Environment Program (UNEP), the International Labour Organization (ILO), the World Bank and the International Program on Chemical Safety (IPCS).

Recommendations:

- identify existing prevention programs for use as guides;
- develop general audit guidelines for use in self or external audit; and,
- track more closely current work on the effect of the human element in accident prevention.

FEDERAL GOVERNMENT COMMITTED

"The most effective — and the most credible — programs rely on stakeholder involvement." This was the principal message delivered in the keynote address by Lee Clark, Member of Parliament for Brandon and Parliamentary Secretary to the Honourable Lucien Bouchard, Minister for Environment Canada.

The government recognizes that an environmental agenda cannot be built without the help and cooperation of others. "For us," said Mr. Clark, "stakeholders mean those corporations, industries, unions, governments — people — who might be affected by a decision."

Mr. Clark said that, in forming governmental policy, the government was not searching for anything that relies on altruism, but for something which depends on, and taps into, all members of our diverse society.

"You represent that society," Mr. Clark told the delegates. "The federal government, and the Department of the Environment in particular, are committed to continued support to MIACC."

REGIONAL MIACC'S: THE NEXT STEP

When a major industrial accident occurs, it is ultimately the local community that suffers the consequences. The primary target of MIACC activities is the communities where there is a potential danger for such accidents. Therefore, it is in MIACC's best interest to encourage the establishment of similar regional mechanisms.

Last year, the steering committee requested that MIACC conduct a survey on regionalization. The intent of this survey was to report on the parallel and supporting activities which are reflected in the national MIACC process. The recommendations of this report were presented to the stakeholders by **Ken Reeves**, Co-ordinator of Emergency Planning Ontario. The following briefly outlines the recommendations.

MIACC should work with broad-based organizations, such as the Canadian Manufacturers' Association, to reach industries not represented by organizations (such as the CCPA* or CPPI**) at the national level. This applies primarily to mid-size companies at the local level.

MIACC should encourage municipalities and industries to take the lead in each community. Provinces should show leadership by providing guidance to municipalities and industries wishing to move forward with programs compatible with the basic MIACC concept.

MIACC should facilitate development of national standards and their acceptance by stakeholders (Examples: training, risk assessment and contingency planning). Provinces could then apply such standards, which should be compatible with the provincial mechanisms essential for delivery, and should enable each province to select the most appropriate strategies and approaches.

MIACC should, through its members, including industries, assist provinces in the selection of delivery routes and implementation of the MIACC process.

* CCPA — The Canadian Chemical Producers' Association
** CPPI — Canadian Petroleum Products Institute

THE STRUCTURAL DEBATE

No one wants to see another Bhopal — certainly not in Canada. Many people, and organizations, are sincere in their efforts to prevent such a disaster — but finding a leader to spearhead the movement is a challenge which continues to elude MIACC and threatens its future.

Initially, the federal government took the lead when Environment Canada commissioned a detailed study on what should be done, and published a report in early 1986. Other federal agencies, some provinces and various industry groups participated in the study, and came forward to join MIACC when the organization was formed in 1987 to co-ordinate the implementation of the report's recommendations.

Since its inception, MIACC has survived largely on the ad hoc contributions by various federal departments as well as a great deal of goodwill, determination and voluntary effort from its stakeholders. However, future work will demand a more stable and formal structure.

MIACC has made great progress towards fulfilling its objectives. However, tasks have become increasingly complex, and this is placing a strain on the voluntary nature of the organization. To complete the objectives to the best of their ability, MIACC requires the following:

- a basis of authority which delineates structure, direction and control; and,
- a means of obtaining funds.

The absence of structure caused much frustration with the organization of the annual general meeting. For example, a registration fee was charged to offset meeting expenses. However, MIACC is not set up to receive funds. Therefore, the organization solicited the aid of Environment Canada, and all incoming registration fees had to be paid to the Receiver General for Canada and not directly to MIACC. This in turn meant that no meeting expenses could be incurred without first acquiring all the necessary and proper authorization from Environment Canada. This is a complex and time consuming task that MIACC is not equipped to handle with its present resources.

Funding is another obvious need. For instance, work on risk assessment guidelines for canadian municipalities is nearing completion, and MIACC lacks the necessary resources or funding to print and distribute these documents. Stakeholders are willing to participate, but the amount of work needed to co-ordinate some activities calls for additional support.

More serious efforts are necessary to establish some long term funding arrangements for MIACC. Then, viable operating plans can be developed.

At the annual meeting, 19 delegates spoke on the issue and offered many comments and viewpoints.

Representatives of the federal government observed that three departments have provided leadership and support thus far; now, industry should take on a greater role. Membership dues were suggested as a possible source of funding, with a sliding scale to permit large and small organizations to contribute.

Industry representatives responded that they were willing to participate and provide some financial support, but that governments — particularly the federal — have a definite responsibility where public safety is concerned, especially since MIACC addresses many questions of public policy. Core support and leadership should be by federal and provincial governments, who are also in a better position to reach municipalities, smaller businesses and industries not currently represented on MIACC. The co-operative approach under federal leadership, used to good effect for the Workplace Hazardous Material Information System (WHMIS), was proposed as a recommended solution. Another suggestion was the administration of a system of membership dues. This would need more thought to resolve questions such as whether companies should contribute on an individual or association basis, and how a provincial approach would work for companies operating in several regions.

Both federal and provincial representatives referred to a possible round-table approach, and cited examples where this has worked well. However, all parties present were in consensus that, whatever method is used, MIACC must remain as an independent body able to speak — and be heard — on behalf of **all** stakeholders.

The absence of agreement, although disconcerting, was not unexpected in view of the complexity of the problem and its implications. Those present appeared positive about the need for MIACC, and urged the steering committee to do their utmost to reach a mutually acceptable and viable solution.

MIACC has one year in which to find a way to resolve this issue — or the organization may cease to exist. "We owe it to ourselves — and to the Canadian public — to ensure that we find the answer", said **Jean Bélanger**, Chairman, MIACC.

An Alberta program provides emergency housing for people made homeless by disasters.

Alberta responds to emergency housing needs

by Rob Martin, Director
Rural Emergency Housing Program
Alberta Municipal Affairs
High Prairie, Alberta

When floods, fires or other disasters strike a community, residents must often adjust to the trauma of losing their homes without having alternative accommodation. Emergencies are not limited to whole communities, nor caused solely by natural disaster. To people living in poor and unsafe buildings, relocation often becomes critical to the health and safety of the family. And, in times of major disaster or personal hardship, the basic need of shelter must be met quickly for individuals and families to get on the road to recovery.

In the wake of an emergency, a safe, clean, warm home plays an important part in the healing process. That is why the Housing Division of the Alberta Department of Municipal Affairs has a program to assist Albertans with emergency housing needs when no other alternatives are available. The program assists senior citizens, or individuals with dependents who are considered to be permanent residents of the community, and have an adjusted annual income of less than $18,000.

The program addresses two very distinct groups: an individual or family in crisis, or a large population affected by a major disaster. For both groups, housing officers respond to three types of emergency needs:

— a natural disaster such as a fire, flood or tornado;
— a home environment subjecting its residents to serious health or safety problems due to its location or state of disrepair; and
— health and safety risks which occur when there is serious overcrowding in one particular residence.

Serving the community and individuals

In the summer of 1988, the Sawridge Creek flooded, sending hundreds of Slave Lake residents fleeing to safety. Many lost their homes. A few lost their lives. The Rural Emergency Home Program provided 45 mobile units in three mobile home parks to house flood victims for about six months. One park was set up and serviced within 72 hours of the flood.

In another instance, 20 mobile home units were moved to the hamlet of Garden River, just inside the boundary of Wood Buffalo National Park, after the Metis Association of Alberta alerted program officials of the substandard housing in the hamlet. The majority of residents had been crowded into poor housing that typically was a small one-room log shack.

The Rural Emergency Home Program also assists individuals who are hit by disaster. A Cadotte Lake family, for example, whose home burned on Christmas Eve, was equipped with a mobile home unit in time for Christmas dinner.

Responding to a need

While the Rural Emergency Home Program is available to all Albertans, its clientele are usually northern and rural families and senior citizens whose low income is often derived from seasonal employment or farm income, supplemented by unemployment insurance, social assistance or pension benefits.

Alberta Municipal Affairs housing officers, located throughout the province, receive and screen applications, advise on alternate housing programs, expedite site preparation, advise on on major maintenance service and counsel tenants on purchase and payment of arrears. Considerable liaison and co-operation fostered by direct contact with all levels of government, community/housing associations, native organizations and individuals make this helpful program possible.

To meet these emergency needs, an unfurnished, heated mobile home unit equipped with a stove and refrigerator is provided to approved applicants at an adjusted rent. The program also provides the tenant the opportunity to purchase the mobile home after eight years.

During the last fiscal year, close to 200 families were assisted by the program. Right now, about 1,100 units are occupied.

For further information about the Rural Emergency Home Program, contact the program office in High Prairie at 523-6540, or call the operator and ask for Zenith 22310. Local offices are located in Peace River, Bonnyville, Slave Lake, Grande Prairie, Edson, High Level and Lac La Biche.

Will the chickens come home to roost during the next flood in Edmonton?

GOV'T OF ALBERTA

A view from the floodplain: Has Edmonton turned its back on public safety?

Viewpoint gives you, the reader, a soapbox to stand on and air your views. Start a debate: send your beefs and bouquets to Viewpoint, in care of Insight's managing editor. Views expressed here do not necessarily reflect those of Alberta Public Safety Services.

by Pat Burkette, Past President
Rossdale Community League

(Editor's Note: Rossdale is a modest old neighborhood built on the floodplain of the North Saskatchewan River near downtown Edmonton. A recent controversial building boom has seen expensive new homes rise on lots originally purchased by the city for parkland, but sold later to developers.)

The City of Edmonton's method of dealing with floods in Rossdale is to name the community officially a floodplain. This statement of the obvious has done nothing to prevent flooding of our homes, or increase our safety in a flood.

To understand the floodplain designation, one must go back to 1986, when the city council approved an area redevelopment plan for Rossdale in June. The city chose the most expedient way of coping with new construction in an area with a history of flooding. Building permits would be granted if an engineer or architect certified that building to floodplain standards had been "considered", not necessarily followed.

Anxious to encourage fast redevelopment, the city did not want to discourage builders by forcing them to meet the tough floodplain standards of the Canadian Mortgage and Housing Corporation (CMHC). On the other hand, the city wanted to avoid liability in a flood.

But the community wanted safety for its residents — new housing, which would be safe in a flood. This desire was only reinforced when the North Saskatchewan River flooded in July 1986. If the city was not going to make builders conform to CMHC standards, the community wanted berming of the area. The city rejected this as too expensive. It was evident during the 1986 flood that a berm only one metre in height would have been sufficient to keep the river out of Rossdale.

In dread of floods

The community also felt that the floodplain designation placed residents in a dangerous situation in terms of disaster compensation. In 1986, it was recognized that residents owned some of the oldest houses in the city, built long before the designation. Compensation was provided, but would it be in the future, when people were building houses which did not conform to flood standards? At any rate, people cannot be compensated for the dread of facing rising flood waters, or the awful and unsanitary mess a flood leaves in its wake.

Where does the floodplain designation leave Rossdale in 1990? No new homes have been built to CMHC flood specifications. Some houses' foundations have been built to a height that is below designated flood level, so that flood waters will rise over the main floor, when the objective was to contain damage to the basement; some homes even have basement suites. Engineers and architects have been placed in the ludicrous position of certifying dwellings not for conformance to flood standards, but for "consideration" of flood standards. Some engineers have been disciplined by their professional association for their inability to design flood-safe housing in Rossdale.

A head-in-the-sand view

New residents of Rossdale invariably believe that their homes are certified flood-safe, that their homeowners policy covers flood damage and that floods will not actually reach houses. These fallacies encourage the booming real estate market and permit the city, which held most of the land before it was sold, to reap enormous profit. At the same time, millions of dollars have been poured into grading and landscaping the riverbank in Rossdale for the Capital City Park expansion, with no berm being built. In short, the city has adopted a "head-in-the-sand" view of flood risk management to protect its interests.

Rossdale, as always, sits quietly on Edmonton's river flats, awaiting the next flood. Houses and parkland will be flooded. Lives may be endangered. Tax dollars will be lost. But in

1986, no one wanted to spend time or money on safety. In the event of a severe flood, money spent on berming and building to CMHC standards will seem like a drop in the bucket. That old saying — the chickens will come home to roost — will, I fear, be only too evident in Edmonton's river valley.

Protecting the public from dam failure

by Barry Hurndall,
Engineering Section Head
Dam Safety Branch
Alberta Environment

To protect public safety, recent legislation requires the owners of 60 dams in Alberta to produce emergency preparedness plans.

ALBERTA ENVIRONMENT

Around the early 1970s, a number of dam failures in the United States prompted an examination of dam safety across North America. In Alberta, a dam safety program was conceived after the work of a committee of the Association of Professional Engineers, Geologists and Geophysicists of Alberta, which recommended that Alberta Environment maintain an inventory of dams and develop legislation to assure dam safety.

The result is a dam safety program which takes a preventative approach to ensuring the long-term safety of these structures, specifically through legislation requiring that dam designs meet certain standards before construction, and operate safely afterwards.

Dam safety legislation

After a great deal of consultation with dam owners, the Dam and Canal Safety Regulation was enacted in 1978 by the provincial government. The regulation covers all dams which are more than 25 feet high or store more than 50-acre feet of water or other substances, such as mine tailings or coal waste; more than 1,300 dams are affected. The regulation prescribes inspections including Dam Safety Reports; the process necessary to make changes, repairs or rehabilitation to a dam, and actions required for emergency situations, including the production of Emergency Preparedness Plans.

Recently, under the existing Public Safety Services Act, further requirements for producing Emergency Preparedness Plans for all designated dams were put in place. Under this legislation, dam owners are responsible for preparing plans which outline their specific responsibilities in the event of dam failure or near failure, and what the owners expect emergency response agencies to do, including the local municipalities affected and their first responders.

Dam Safety Guidelines

In 1979, the Dam Safety Guidelines were completed by the Dam Safety Branch at Alberta Environment. These guidelines specify requirements for the approval of new dams, including recommended requirements for their spillway capacity.

The guidelines elaborate on the Dam and Canal Safety Regulation, giving details on the licensing requirements for new dams and the inspection requirements for existing dams.

In this province, the use of rigorous Probable Maximum Flood (PMF) calculation techniques has led to the conclusion that a number of large dams have inadequate spillway capacities. An appendix to the guidelines deals with spillway flood-discharge requirements. The Dam Safety Branch is in the process of reviewing these project flood guidelines to ensure that the spillway capacity provided reflects the downstream risks involved. Spillway capacity requirements for new structures are reasonably clear; if potential for loss of life exists downstream, then the PMF is recommended.

For older structures, use of the PMF is not quite as clear because large rehabilitation costs are often involved in upgrading spillway capacities. The Dam Safety Branch currently favors an incremental damages approach for structures that would cause no loss of life on failure. In this case, some form of economic or risk-based analysis would be appropriate.

The branch intends to modify and reissue the spill guidelines in the near future to include incremental damages/risk analysis concepts and to readdress the decision requirements for selection of the appropriate spillway capacity.

Problems with dams

Inspections by engineers or technologists from the Dam Safety Branch have revealed all of the typical dam deficiencies, including dams with inadequate spillway capacity and freeboard, unstable slopes, inadequate erosion protection, failed or failing conduits, and structural concrete problems, In recent years, dam

Alberta's dam safety program has helped restrict dam failure to small farm dams, such as this one, with only minor localized damages.

ALBERTA ENVIRONMENT

failures have been restricted to small farm dams, which in general have failed due to inadequate spillway capacity and have breached with only minor localized damages. The only failure of a major dam in Alberta occurred in 1956 during the first filling of the 45-foot-high Battle River Dam.

Rehabilitation

Several of the larger dams have undergone, or are undergoing rehabilitation mainly to remedy inadequate spillway capacity, but also to rectify damage due to freeze-thaw action and problems due to ice loading and inadequate factors of safety against slope failure.

The privately owned TransAlta Utilities, for example, has spent about $50 million to date on work which includes the rehabilitation of Kananaskis Falls, Bearspaw and Ghost Dams. Rehabilitation to increase the spillway capacity on the Ghost Dam, located west of Calgary on the Bow River, will cost $28 million, and to provide a new side channel spillway at Bearspaw, about $15 million.

Emergency preparedness planning

Inundation Mapping Dam Safety Branch has produced numerous inundation maps for use in Emergency Preparedness Plans. These maps show the flooding resulting from hypothetical dam breaks at the larger provincially owned structures. The U.S. National Weather Services's Dambreak Program (NWS DAMBRK) has proved to be the most useful computer program for carrying out this type of analysis. Short failure times in the one-to-two-hour range are used for most earth structures, and much less than one hour for concrete dams. Valley cross-sections can usually be obtained from existing mapping, generally at a 1:50,000 scale.

More accurate survey data is required at the dam site and other areas where bridges, intakes, structures, etc. or residential areas exist. The resultant inundation mapping is usually produced at a 1:50,000 scale on maps with a 25- or 50-foot contour interval. The mapping is considered entirely adequate for emergency planning.

Emergency Preparedness Plans (EPP) In recent years, emergency preparedness planning has become important for the areas below a dam which would be affected by a dam failure. Under existing dam safety legislation and the recently issued *Government Emergency Response Plan for Dam Breach* by Alberta Public Safety Services, the province requires that dam owners produce emergency response plans for their dams. At present, 60 dams have been identified as requiring these plans. Most large dams are owned by the provincial government, TransAlta Utilities, oil companies and irrigation districts.

Alberta Environment, which owns and operates a number of large irrigation headworks and flood control dams, has finished emergency preparedness plans for several of these projects and is in the process of producing plans for the remainder. The Dam Safety Branch is preparing guidelines for privately owned dams, so work on all emergency preparedness plans can be completed.

A successful safety program

During the past 12 years, the Alberta Dam Safety Program has successfully brought to light the condition of the dams within the province. Some dams were identified that required immediate remedial work, while others required phased-in work. In all cases, the dam owners have responded by carrying out the required repairs, reporting and evaluations in a spirit of co-operation. The owners should be commended for this. The program has been successful, and continues to be.

Flood Planning, Response and Mitigation: A selected bibliography of materials available from the Alberta Public Safety Services Library

Compiled by Teresa Richey,
APSS Librarian

To borrow material listed, send an interlibrary loan request form (no personal requests, please) to Alberta Public Safety Services Library, 10320 - 146 Street, Edmonton, Alberta, Canada T5N 3A2. Materials located in the Compliance Information Centre, at our Training School, the Government Emergency Operations Centre or our Reference Collection cannot be borrowed but can be referred to in the library.

Cheng-Jardine, Candy. **Anniversary Survey Report of the 1988 Flood in Slave Lake and I.D. 17.** Slave Lake, Alta. : Athabasca Health Unit, 1989.
51 leaves.
HV 610 1988 .C46 1989, MAIN LIBRARY

Citizens Flood Recovery Procedures Handbook. s.1. : New Brunswick Emergency Measures Organization, n.d. 30 p.
HV 610 .A3 C58, MAIN LIBRARY

> What to do after returning to flooded or badly water-damaged property. Basic sanitary procedures for rehabilitation, water supply and food contaminated by flood water. A step-by-step guide through buildings and equipment detailing what to do to make the property safe. French and English texts printed back to back.

A Flood Hazard Mitigation Program for Alberta: Preliminary Report. By Hydrotek Water Resource Consultants. Edmonton, Alta. : Alberta Environment, 1981. 34 leaves.
TC 426.5 .A42 F68, MAIN LIBRARY

Flood Proofing Bibliography, Annotated. s.l. : United States National Floodproofing Committee, 1988. 25 p.
Z 5853 .H9 F66, REFERENCE

> Produced by the United States Army Corps of Engineers; items featured include conference proceedings, guides to floodproofing, construction techniques, damage reduction, insurance. In our reference collection and not available for loan.

Knapik, L.J. and D.S. Vanderwel. **Agricultural Land Flood Damage Disaster Assistance Program West-Central Alberta, 1986: Silting and Erosion Summary Report.** (Edmonton, Alta.) : Alberta Agriculture, 1989. (53) leaves.
HV 610 1986 .K36 c.1-4, MAIN LIBRARY

> Outlines the program developed to assist farmers in reclamation measures for damaged farmland. Includes the assistance payment summary, program follow-up and recommendations for developing future programs.

Naik, Hasu, and Derek Bjonback. **Role of Disaster Assistance in Floodplain Management.** Regina, Sask. : Environment Canada, 1988. 11 leaves.
HV 610 .N34 R46, MAIN LIBRARY

> As flood disasters account for the majority of federal financial assistance in disasters, the need for a formula for calculating federal financial participation is discussed. The efficiency, equity and policy implementation aspects of disaster assistance is discussed in terms of the Canadian and American federal programs. Presented at the 6th World Congress on Water Resources, International Water Resources Association, May 29 - June 3, 1988, Ottawa, Canada. Includes bibliography.

The Need for Teamwork in Managing Flood Hazards. Sacramento, California April 26-29, 1983. Sacramento, Calif. : Association of State Floodplain Managers, 1983. various pagings.
HV 610 .A3 A88, MAIN LIBRARY

Operation Wetfoot '74: Report of the 1974 Flood Compensation Program. Edmonton, Alta. : Alberta Disaster Services, 1975. (36) p.
HV 610 .A3 A422 c.1-2, MAIN LIBRARY

Scanlon, Joseph, Brian Taylor and Therese Jarzab. **The Terrace Floods, 1978: Defining a Disaster.** Ottawa, Ont. : Emergency Preparedness Canada, n.d. (109) p.
HV 610 1978 .T47, MAIN LIBRARY

> Report on the Terrace floods' effects, response to them and how the effects were reported by the media. Attempts to establish how people identify emergencies, react to them and pass on the news. Delves into the public's perception of disaster and the resulting need for emergency response.

1975 Spring Flood Conference: Summary Report (Canadian Emergency Measures College, Arnprior, Ontario). Arnprior, Ont. : Emergency Planning Canada,
HV 610 .A3 S66, MAIN LIBRARY

Warner, L.A. and B.J. Paruk. **Flood of July 1986 in West Central Alberta.** Calgary, Alta. : Environment Canada, 1988. 169 p.
HV 610 1986 .F69, MAIN LIBRARY

> Technical report dealing with the flood event as it affected British Columbia, Alberta and Saskatchewan, and resulting damage. Results include meteorological, hydrological and flood frequency analyses. Summary of reported flood damages given.

Willis, Jennifer D. **Flood Insurance - Asset or Liability in Land Use Control.** Ottawa, Ont. : Emergency Planning Canada, (EPC Research Report 76 2), 1976. 17 p.
HG 9983 .W56 c.1-2, MAIN LIBRARY

Permits are issued under the Transportation of Dangerous Goods Control Act to ensure safety in cases where exceptions to regulations are granted.

Pointers on permits: Filling out forms correctly speeds processing

by Ian Zaharko, Director
Regulatory Standards and Approvals

Permits are addressed in Section 4 and 5(1) of the Transportation of Dangerous Goods Control Act and Part 2 of the Administration Regulations (Alberta Regulation 37/86).

There are two types of permits: Exception, and Equivalent Level of Safety. The permit for Exception may be used to exempt the applicant from all or part of the requirements of the regulations. The permit for Equivalent Level of Safety provides for the handling, offering for transport or transporting dangerous goods in a manner that does not necessarily comply with the regulations, but provides a level of safety equal to that required in the regulations. It is emphasized that it is not necessary to obtain a permit simply to handle, offer for transport, or transport dangerous goods.

Alberta's Transportation of Dangerous Goods Control Act and regulations govern the handling, offering for transport and transportation of dangerous goods; however, the provincial act and regulations are restricted to the intra-provincial highway-mode transport, whereas the federal act and its regulations regulate air, rail, marine and extra-provincial highway modes of transport. Applications for permits for modes of transport other than intra-provincial highway transport must be made to the Dangerous Goods Directorate in Ottawa. Applications for intra-provincial transport and extra-provincial transport may be made simultaneously to Ottawa and Alberta Public Safety Services.

As with federal permit applications, provincial permits extend to products in the transportation system from the permitee's premises to the end user of the product. An example would be a permit that allows a corporation to label a product differently from the labelling requirements prescribed by the regulations. This type of permit will be applicable to all subsequent corporations or individuals who receive the product and have to reship it, provided it is not being shipped outside of Alberta. If it is shipped outside Alberta, a federal permit will be required.

Permits processed as soon as possible

Once Alberta Public Safety Services receives the permit application, it is processed as soon as possible. A review process is in place, which includes application evaluation, drafting of the permit, consultation with the applicant and, where appropriate, other provinces and Ottawa.

Consultation with the applicant may be necessary in cases where the application is not clear. To avoid unnecessary delays, the following points will assist readers who plan to submit applications:

—A permit must be issued to a "person", and legally this can be an individual or corporation, while an association may apply on behalf of its members;

—Every name of a corporation or individual making the application must be the legal name. For example, "XYZ Corporation" operating under a business title of "ABC" must submit the application under its legally incorporated name, "XYZ Corporation". The operating name may be added, in parentheses, after the legally incorporated name;

—Complete information on how to contact applicants is essential. Telephone numbers and addresses must be accurate and current. Applicants who have a facsimile system should provide a fax number and, if possible, an answer-back code either in the covering letter or on the permit application;

—For efficient processing of a permit application, correctly referenced sections of the regulations should be included. It is necessary that the entire permit application be completed accurately and all relevant information be included. Material Data Safety Sheets, drawings, proposed transport routes and any other background information considered relevant to the application should be attached. If in doubt as to what additional information should be submitted, contact Ian Zaharko, Director, Regulatory Standards and Approvals, Dangerous Goods Control Division, Alberta Public Safety Services, 10320 -146 Street, T5N 3A2, telephone 451-7132.

Mistakes cause delays

It should be emphasized that an incomplete application will result in unnecessary delay. It is also important to note that all conditions of the permits must be complied with (without exception). Failure to do so will result in the permit becoming null or void, therefore requiring the permit holders to comply strictly with all the applicable regulatory requirements.

As noted earlier, Alberta permits apply only to the handling, offering for transport and transportation of dangerous goods within the province of Alberta. For information on permit applications outside of Alberta contact:

Transport Dangerous Goods
Directorate
Transport Canada
14th Floor, Canada Building
Minto Place
344 Slater Street
Ottawa, Ontario K1A 0N5
Telephone: (613) 998-0519

For permits in British Columbia, contact:

Dangerous Goods Director
Motor Vehicles Branch
Ministry of Solicitor General
2631 Douglas Street
Victoria, British Columbia
V8T 5A3
Telephone: (604) 387-5585

Review and appeal procedures

Should a permit application be rejected, Part 2 of the Transportation of Dangerous Goods Control Act Administration Regulation provides the opportunity to have the application reviewed by the executive director of Dangerous Goods Control. A detailed letter about what procedures must be followed to have an application reviewed will be attached to each notice of rejection. In the event an application for review is rejected by the expiry date, and an applicant is still not satisfied with the result, there is a final opportunity to appeal the review rejection, if an application is made within 30 days of receipt of rejection, directly to the Minister responsible for Alberta Public Safety Services.

Notes on permits

—Alberta permits apply only to the handling, offering and transporting of dangerous goods within the province of Alberta;

—The permit is not a "licence" that exempts the applicant from the regulations, and it is subject to withdrawal, amendment and non-renewal;

—All conditions of the permit must be strictly adhered to as failure to comply with any one condition of the permit will render the permit technically inoperative and place the permit holder in a position of strict and complete compliance with the regulations.

—The majority of the permits require that a copy of the permit accompany each shipment. This requirement is necessary to prevent permit holders from being mistakenly challenged for non-compliance with the regulations and to assist emergency response personnel.

Your safety depends on it

It is important to comply with all conditions of the permit. Your safety, and the public's, depend on it.

Telephone Numbers for Dangerous Goods Control Division

Dangerous Goods Control Staff can be contacted at the following telephone numbers:

R.G. Wolsey, Executive Director	451-7107
S.P. Hammond, Director, Program Operations	451-7131
W.W. Smith, Chief Inspector, On-Highways	451-7138
R. Henderson, Chief Inspector, Facilities	451-7134
J. Harpin, Director, Compliance Information Centre	451-7173
I. Zaharko, Director, Regulatory Standards and Approvals	451-7132

The telephone number for the Coordination and Information Centre (formerly the Compliance Information Centre) is 422-9600 for the Edmonton area, and outside Edmonton area, 1-800-272-9600 (toll-free) outside the Edmonton area.

Product Profile

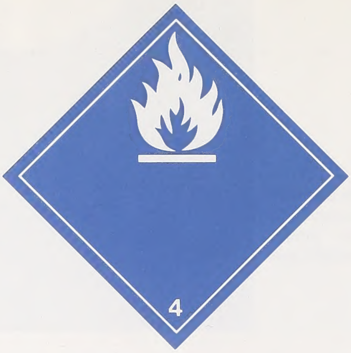
Lithium

Some regulated dangerous goods, such as lithium, are elements — substances that cannot be broken down into any other components. Elements are the simplest form of matter, and the building blocks of the compounds which enhance our way of life.

Lithium is the lightest of the solid elements, and the least reactive of the alkali metals grouped in the chemical periodic table by their atomic structure. Other elements in this group are sodium and potassium, and all react vigorously with water, including moisture in the air. When exposed to water and air, they produce hydrogen gas, which burns because of the energy produced in the reaction, and sometimes explodes. Because of this property, lithium and its fellow alkali metals must be stored under fluids that exclude water and oxygen, such as kerosene or mineral oil, or in a vacuum.

To start a fire, three things are required: fuel, a source of ignition and oxygen. When exposed to the air, lithium becomes both fuel and the source of ignition. Fires involving lithium must therefore remove the third component, oxygen, to prevent the chain of events required to produce fire. To extinguish fires involving lithium, non-combustible material such as sand, or special mixtures of dry chemical, soda ash and graphite are most effective.

People responding to a lithium fire must wear protective clothing, including impervious gloves, safety goggles, and flame-resistant boots and suit. If ventilation is not good, a self-contained breathing unit will be necessary. If lithium is inhaled, ingested or comes into contact with the eyes, immediate medical attention must be sought. While contaminated clothing is being removed, exposed skin should be washed thoroughly with copious amounts of water. Immediate medical attention is required if irritation persists.



Required Placard and Label

In its pure state, lithium is used by chemical laboratories, but it is not found in the home under normal circumstances. Some of the technical applications for lithium include uses in nuclear reactor coolants, rocket propellants, steel manufacture and copper refining. Around the home, lithium compounds may sometimes be found in pharmaceuticals, soaps and synthetic vitamin A. There are many other applications, including storage of power in lithium batteries, because lithium is a good conductor of electricity.

The Transportation of Dangerous Goods Regulations list lithium as a Class 4.3 product, or those substances which emit flammable gases on contact with water. The product identification number (PIN), or United Nations number for lithium is UN 1415, with a packing group of II. Because of lithium's reactive nature, there are restrictions applying to its transportation. The shipment of lithium is prohibited on any passenger aircraft, passenger ship, public passenger rail vehicle, or passenger road vehicle. Any amount of a Class 4.3 substance in shipment requires safety placards on the transporting vehicle, including situations where other dangerous goods requiring placards are included. Under the regulations, lithium also cannot be transported as "limited quantity" or "consumer commodity". Small containers must always be labelled, and the shipping name and UN number must be marked on the container. It is prohibited to transport lithium in bulk.

Hazardous waste disposal for school labs

Laboratories in Alberta's schools generate hazardous wastes that are controlled by the province's Transportation of Dangerous Goods Control Act (TDGC) and regulations when shipped. The use of a container system known as a "labpack" offers a procedure to transport these hazardous wastes safely to an acceptable disposal site, which in Alberta is located at Swan Hills. The term hazardous wastes is intended to mean "wastes which are dangerous goods" as defined by the Transportation of Dangerous Goods (TDG) regulations.

To advise schools how to best use labpacks, the Dangerous Goods Control Division of Alberta Public Safety Services, in conjunction with Environment Canada, has prepared an information bulletin, *Disposal of Waste Chemicals From School Laboratories in Alberta.* While the bulletin highlights the major requirements for using labpacks, school personnel should consult the full TDG regulations before shipping, carrying or receiving hazardous wastes.

Alberta Public Safety Services and Transport Canada both recommend the use of labpacks for the transportation of small quantities of compatible wastes from school laboratories. A typical labpack might include leftover chemicals, samples, out-of-date material and used (unwashed) containers. Wastes must be classified prior to shipment, and wastes with different classifications must be packed in different labpacks.

Topics discussed in the information bulletin are:

—packing requirements
—preparation of labpacks, identification of wastes, the type of transit drums required, and how to fill the drum
—documentation required by TDG regulations
—safety marks to be displayed on the outside of the labpack
—required training for anyone who handles, offers for transport or transports hazardous wastes
—spill reporting procedure in the

event of an accident
—registration with Alberta Environment for all shippers, carriers and receivers of hazardous materials.

For further information, or copies of Disposal of Waste Chemicals From School Laboratories in Alberta, contact: Alberta Public Safety Services, Dangerous Goods Control Division, 10320 - 146 Street, Edmonton, Alberta, T5N 3A2, telephone 422-9600 in the Edmonton area, or toll-free elsewhere in Alberta, 1-800-272-9600. Information is also available from Alberta Environment, Waste Management Branch, Pollution Control Division, Oxbridge Place, 9820 - 106 Street, Edmonton, Alberta, T5K 2J6, telephone 427-5868 in the Edmonton area, or toll-free elsewhere in Alberta 1-800-222-6514.

News from MIACC

This issue of *Insight* includes a copy of the *MIACC News,* the newsletter of the Major Industrial Accidents Co-ordinating Committee (MIACC). As a member of MIACC, and one of the parties instrumental in its founding, Alberta Public Safety Services is distributing *MIACC News* to keep the province's disaster planning and response community aware of the committee's activities.

MIACC was formed in late 1987 to prevent a Bhopal-type of incident from occurring in Canada, particularly after a major study the year before concluded that the potential existed for a similar accident here.

The committee follows a co-operative, consensus-seeking model rather than a regulatory approach, with representatives from federal, provincial and municipal agencies, industry associations, emergency response organizations and the academic community. The representatives are known, appropriately, as stakeholders.

"If the various stakeholders are involved in reaching a concensus, they develop a feeling of ownership in what is produced," says Jean Belanger, president of The Canadian Chemical Producers' Association and current chairman of the MIACC steering committee. "Then, when the time comes for implementation, the battle is already half won. Instead of adversaries, we then have participants with a common goal."

Many of MIACC's projects are coming to fruition, and municipalities can expect to receive information in the near future on such subjects as buffer zones, risk assessment guidelines, contingency plan guidelines, training standards for emergency response personnel, and the locations of extremely hazardous dangerous goods being stored and manufactured in Alberta.

Make a note . . .

1990 Annual Conference
National Coordinating Council on Emergency Management

Oct. 13-16, 1990. The council's annual conference and exhibition will be held at the Gunter Hotel in San Antonio, Texas for emergency managers and civil defence coordinators. For more information, contact: council headquarters at 7297 Lee Highway, Suite N, Falls Church, Virginia 22042, telephone (703) 533-7672.

HAZTECH Canada Western
Calgary '90

Nov. 6-7, 1990. The conference, for individuals involved in environmental control and hazardous waste management, will be held in Calgary, Alberta. For further information, contact: HAZTECH Canada, #260, 4936 - 87 Street, Edmonton, Alberta, T6E 5W3, telephone (403) 466-6622, fax (403) 469-1398.

4th MIACC Annual General Meeting

Nov. 7-8, 1990. The Major Industrial Accidents Co-ordinating Committee (MIACC) will hold its annual conference at Montebello, Quebec. Attendance is by invitation only, and discussions will address MIACC products and their implementation, new initiatives, and the future of MIACC. MIACC was established in 1987 to work towards preventing a Bhopal-type incident in Canada. Its members include senior representatives from federal, provincial and municipal government departments, industry and other interest groups.

Hazards '91
April 21-27, 1991. This international symposium on Geophysical Hazards in Developing Countries and Their Environmental Impacts will be held in Cairo, Egypt. The symposium is being convened by the International Society for the Prevention and Mitigation of Natural Hazards and is being held at the start of the International Decade for Natural Disaster Reduction proclaimed by the United Nations. Short abstracts will be accepted up to Aug. 1, 1990. For further information, contact: Dr. T.S. Murty, Institute of Ocean Sciences, P.O. Box 6000, Sidney, B.C., V8L 4B2, telephone (604) 356-6746 or fax (604) 356-6390.

Emergency Response '91
May 1991. Emergency Response '91 is being planned for late May in Calgary, and exact dates will be confirmed soon. The conference, which is being organized by the Major Industrial Accidents Co-ordinating Committee (MIACC), will be a showcase for MIACC's finished products and their use. Emergency Response '91 will also promote the exchange of information and the latest in technological developments in the fields of prevention, preparedness and response to major industrial accidents involving dangerous substances.

4th International Conference on Seismic Zonation
Aug. 26-28, 1991. The Fourth International Conference on Seismic Zonation for Safer Construction and Reduction of Life and Property Losses from Future Earthquakes will be held at Stanford University in the San Francisco Bay region. The conference, sponsored by the Earthquake Engineering Research Institute, will provide a state-of-the art assessment of the advances in seismic zonation integrating earth sciences, engineering, planning, social sciences and public policy. For further information, contact: Earthquake Engineering Research Institute, 6431 Fairmont Avenue, Suite 7, El Cerrito, California 94530-3624, U.S.A., telephone (415) 525-3668.

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1990 Course Schedule

Alberta Public Safety Services Training School

Note: Course dates are subject to change.

August 21 - 23	#9017	Municipal Disaster Services Program Management
August 28 - 29	#9018	Dangerous Goods Carriers & Shippers (Provincial Employees)
September 11 - 13	#9019	Dangerous Goods Response Seminar
September 19 - 20	#9020	Disaster Social Services
October 16 - 18	#9021	Disaster Health Planning Seminar
November 13 - 16	#9022	Emergency Site Management
November 13 - 16	#9023	Emergency Public Information Officers
November 19 - 23	#9024	Rescue Leaders
November 28 - 29	#9025	Disaster Social Services

In addition to these courses, the Alberta Public Safety Services Training School also offers numerous basic rescue courses and dangerous goods awareness courses. To attend a course, contact your local Director of Disaster Services.

For further information, contact:

Scott Bricker
Director of Training
Alberta Public Safety Services
10320 - 146 Street
Edmonton, Alberta
T5N 3A2
(403) 422-0346

ALBERTA PUBLIC SAFETY SERVICES
AGENCY INSIGHT